

## HUMAN VARIATION AT THE GENETIC, MORPHOLOGIC, AND PHYSIOLOGICAL LEVELS: PAPERS IN HONOR OF DEREK F. ROBERTS

Selection of Symposium Papers Presented at the 64th Annual  
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Symposium Organizers: M.H. Crawford and R. John Mitchell

### Introduction

M.H. CRAWFORD,<sup>1\*</sup> AND R. JOHN MITCHELL<sup>2</sup>

<sup>1</sup>*Department of Anthropology, University of Kansas Lawrence,  
Kansas 66045*

<sup>2</sup>*School of Genetics and Human Variation, LaTrobe University, Bundoora,  
Victoria, Australia 3083*

The symposium entitled "Human Variation at the Genetic, Morphologic, Physiologic, and Disease Levels: The Contributions of D.F. Roberts" was convened in Oakland, California, on March 30, 1995, at the Sixty-Fourth Annual Meeting of the American Association of Physical Anthropologists. A total of ten scholarly papers, an introduction, and a tribute in the form of a poem were featured. This symposium honored Derek F. Roberts's 70th birthday and his profound contributions to the fields of physical anthropology and anthropological genetics. The symposium was structured to reflect Roberts's broad scientific interests: the genetic structure of human populations, the relationship between geography and basal metabolic rates, demography of genetic isolates, medical genetics, and general population biology. Roberts's scholarly contributions were based on field investigations in numerous geographic localities, such as Africa, India, Europe, and South America. His numerous publications, lodged in volumes and in journals such as *Nature*, *Human Biology*, and the *American Journal of Physical Anthropology*, always displayed the high-

est level of academic excellence and innovation.

The five manuscripts that constitute this tribute to Derek Roberts reflect some of the diversity of his interests and scientific contributions. The first contribution, by Soodyall et al., traces the founding mitochondrial DNA (mtDNA) lineages among the islanders of Tristan da Cunha and demonstrates the fidelity of mtDNA transmission and the absence of any mutations during the brief history of this unique population. This research complements Roberts's earlier demonstration of the action of stochastic processes and the effects of unique historical events on genetic diversity (Roberts, 1968).

The second contribution to this symposium, by Mitchell et al., presents a variety of Y-chromosome specific alleles in European and Asian subpopulations of Australia. Although such DNA markers were unavailable

\*Correspondence to: Dr. M.H. Crawford, Laboratory of Biological Anthropology, Department of Anthropology, University of Kansas, Lawrence, KS 66045. E-mail: CRAWFORD@KUHLUB.CC.UKANS.EDU

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to Roberts throughout much of his career, they would have been invaluable to the analysis of genetic structure from the perspective of the paternal lineage. Such markers also would have permitted the reconstruction of differential male gene flow into genetic isolates such as Tristan da Cunha.

The article by Crawford et al. provides a transition between the application of standard genetic markers (such as blood groups, and serum and erythrocytic proteins) and nuclear DNA markers to the genetic structure of Siberian indigenous populations. The researchers use an assortment of analytical techniques: principal components analysis (often used by Roberts in his publications), spatial autocorrelation analysis for the detection of geographically based patterns and clines, and the application of Mantel correlations for determining the concordance of matrices consisting of genetic, linguistic, and geographic distances.

Roberts's enthusiasm for small genetic isolates and the effects of stochastic processes and inbreeding directly led Bonné-Tamir to study the Samaritan population of Israel (Bonné, 1963). The fourth contribution to this compendium, by Bonné-Tamir et

al., "re-visits" the Samaritans in a study of the transmission of Usher syndrome. This paper blends two of Roberts's favorite topics, medical genetics and reproductively isolated populations.

Early in his career, Roberts published a series of articles and a monograph on the relationship between climate and human physiological and morphological variability (Roberts, 1952). The final contribution to this symposium, by Bindon and Baker, extends this research to Oceanic populations and explores the role of the thrifty genotype model in the settlement of the islands. Bindon and Baker postulate that during the peopling of Oceania, selection may have operated in favor of energetic efficiency. However, under the conditions concomitant with modernization, obesity and non-insulin dependent diabetes reached high proportions.

#### LITERATURE CITED

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